



*A NIOSH Education and Research Center for  
Occupational & Environmental Health & Safety*

# Mountain and Plains Education and Research Center

## Summary Annual Report

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## Program Overview

The Mountain and Plains Education and Research Center (MAP ERC) is housed in the new Colorado School of Public Health (CSPH) in the Department of Environmental and Occupational Health. It is a joint effort of the University of Colorado Denver (UCD), Colorado State University (CSU), National Jewish Health, Denver Health and Hospital Authority, and the University of New Mexico Health Sciences Center. Nearly 100 faculty members at these institutions have united to help fill an important regional need in the West (Colorado, New Mexico, Arizona, Wyoming, Montana, North Dakota and South Dakota), including collaboration with neighboring ERCs. Visit us online at: <http://maperc.ucdenver.edu/>.

We provide training in two Core Programs: Occupational and Environmental Medicine Residency and Industrial Hygiene; and three Allied Occupational Safety and Health Programs: Ergonomics, Occupational Health Psychology, and Health Physics. Last year, 30 trainees received full or partial support from the NIOSH MAP ERC. In 2009, 20 trainees graduated from our programs and joined the regional workforce of occupational health and safety professionals.

Center wide activities include our Pilot/Small Projects Research Program, a Diversity Recruitment Program that is integrated with our Outreach Program, Interdisciplinary Integration, and a Continuing Education Program. Our mission is to improve occupational and environmental health and safety through education, research, and community partnerships. We help address the critical need for well-trained occupational and environmental health professionals in our region by offering graduate level and post-graduate training and continuing professional education.

Academic Program	Faculty*	Total Trainees	NIOSH Trainees	Graduates 2009
Industrial Hygiene	23	19	7	7
Occupational/Environmental Medicine	49	4	4	3
Health Physics	6	14	4	6
Occupational Health Psychology	9	12	12	3
Ergonomics	11	5	2	1

\*Includes adjunct/supporting appointments

## Core Academic Programs

**Occupational and Environmental Medicine Residency** (E. Brigitte Gottschall MD, MSPH, Director; Cecile Rose, MD, MPH, Co-Director; Lee Newman, MD, MA, Co-Director)

Twenty-three Core Faculty and 26 Supporting Faculty members contributed to clinical and research training of 4 residents in this two-year program. A joint endeavor of UCD, National Jewish Health, and Denver Health and Hospital Authority, the program provides ACGME-accredited training that includes a Masters of Public Health degree. This past year represented a significant transition, with faculty members actively involved in the opening of the new Colorado School of Public Health on July 1, 2008; creation of a new Department of Environmental and Occupational Health; recruitment of a new Department Chair, Dr. John Adgate; creation of 13 credit hours of new curriculum in occupational and environmental health; and a physical move to the new campus for UCD—the Anschutz Medical Campus in Aurora, Colorado.

**Industrial Hygiene Training Program** (Stephen Reynolds, PhD, CIH, Director; William Brazile, PhD, CIH, Co-Director)

Twelve Core Faculty and 22 Supporting Faculty members contributed to the professional and research training in Industrial Hygiene. This CSU-based program in the Department of Environmental and Radiological Health Sciences provides ABET-accredited training at the masters and doctoral level. Achievements this past year included further progress in promoting increasing interaction between industrial hygiene students and the other trainees on the CSU and UCD campus, through shared courses, seminars, and industrial site visits; recruitment of the new Department Chair, Dr. Jac Nickloff; development of three new courses to address

needs for multidisciplinary training and in the management aspects of occupational and environmental health; and extensive participation in the founding of the CSPH, which is a joint endeavor of UCD, CSU and University of Northern Colorado.

## **Allied Occupational Health and Safety Academic Programs**

**Ergonomics Training Program** (John Rosecrance, PhD, PT, CPE, Director; David Gilkey PhD, DC, CPE, Co-Director; Peter Chen, PhD, Co-Director)

Masters of Science and doctoral degrees are offered by four core and seven supporting faculty members. This highly interdisciplinary program is structured to provide competency toward the goal of helping graduates become Certified Professional Ergonomists or Certified Ergonomics Associates. By design, the program has strong linkages with occupational health psychology, health physics and industrial hygiene, through shared course work, seminars, site visits, and research. In 2008-2009, we developed new distance learning offerings in ergonomics that are available to students on either campus and in the community. Faculty members contributed to the development of our new interdisciplinary course, and partnered with the Heartland Center for Occupational Health and Safety (Iowa) in holding the first “ERC Interdisciplinary Forum on Measurement Systems for Occupational Health and Safety Research.” A new faculty member, David Douphrate, PhD, PT, MBA was recruited to join the Ergonomics faculty in 2009.

**Occupational Health Psychology Training Program** (Peter Chen, PhD, Director; Lorann Stallones, MPH, PhD, Co-Director; John Rosecrance, PhD, PT, CPE, Co-Director)

The field of Occupational Health Psychology concerns itself with applying psychology to improving the quality of work life and to protecting and promoting the safety, health and well being of workers. This training program is one of only two such programs offered by NIOSH ERCs. It provides graduate education in a highly interdisciplinary model, offering education not only in psychology, but also in ergonomics, industrial hygiene, and epidemiology. Based at CSU, four core faculty and five supporting faculty trained Masters of Science and doctoral students. Among last years achievements: they coordinated a monthly “brown-bag” conference for the entire MAP ERC and participated in the development of our new interdisciplinary course as well as a new, experimental course in undergraduate occupational health psychology at CSU.

**Health Physics Training Program** (Thomas Johnson, PhD, Director)

Facing a critical shortage in the supply of qualified radiation safety professionals, especially in our region, the Health Physics training program at CSU has been able to continue to increase its number of funded positions because of MAP ERC support. Last year, the six core faculty members in this ABET-accredited program trained both Masters of Science and doctoral students, and developed two additional curricular offerings, including our interdisciplinary course and a course in non-ionizing radiation safety. We effected the successful transition of training program leadership from Dr. Thomas Borak to Dr. Thomas Johnson, and opened a national search for an additional tenure-track faculty member. This program continued to lead many of the MAP ERC interdisciplinary site visits, including visits to Los Alamos National Laboratory, uranium mine in Wyoming, and regional power plant.

## **Continuing Education**

Karen Mulloy, DO, MSCH, Director; David Gilkey, PhD, DC, CPE Associate Director, Kenneth Scott, MPH, Assistant Director

The CE program has developed new, needs-based courses and launched its web-based distance learning program in 2008-2009. These offerings draw from more than 280 occupational, environmental, health and safety related topics in the inventory of lectures provided by core and supporting faculty, plus seminars presented by visiting professors. We sponsored or co-sponsored seven major events in 2008-2009, including: the Rocky Mountain Section-AIHA and ASSE Annual Fall Conference – October 2008, Denver,

CO; Rocky Mountain Academy of Occupational and Environmental Medicine Winter Conference – January 2009, Denver, CO; the NIOSH NORA Symposium – July 2008, Golden, CO; Oil and Gas Exploration and its Health Impact in the Rocky Mountain Region Symposium – October 2008, Carbondale, CO; the first Western States Occupational Network (WestON) Conference on occupational health surveillance indicators, co-sponsored by CTSE and NIOSH Denver Regional Office – October 2008, Denver, CO; Aspen Lung Conference – June 2009, Aspen, CO; and Hydraulic Fracturing in Colorado: A Public Forum – August 2009, Glenwood Springs, CO. A recurring-format seminar on worker health and safety in the energy sector (e.g. oil and gas, renewable energy, nuclear energy, mining) is being developed in collaboration with the NIOSH Denver Regional Office and key stakeholders in the region. More than 80 lectures have been captured by video and are being edited and released by the CE Program, across a range of topics from occupational asthma to health protection and health promotion from a motivational perspective. A unique set of online occupational health psychology courses began production, as did a multi-module course on environmental and occupational toxicology. In sum, nearly 800 continuing education trainees received more than 1100 person-days of continuing education through 14 CE Program live and online courses.

## **Center Wide Activities**

Lee Newman, MD, MA, Center Director; Stephen Reynolds, PhD, CIH, Deputy Director; Cindy Becnel, MS, Outreach Director, William Brazile PhD, CIH and Dominic Martinez, Diversity Program Co-Directors, John Reif, PhD, Pilot/Small Projects Research Program Director

### **Administrative core built to promote interdisciplinary Coordination.**

A successful ERC is more than the sum of its training programs. Our 2008-09 highlights included: enhancement of our website; increased subscriptions (to >450) to our weekly e-newsletter, “*RoadMAP*”; coordination of our second all-Center retreat, central scheduling of industrial site visits; hosting of interdisciplinary activities such as the Visiting Scholar Lecture Series, Brown bag; and Journal Club; coordination of our first Annual MAP ERC Research Symposium in January 2009; coordination with the CSPH to create integrated curricular offerings accessible for credit at UCD and CSU, including development of 13 new credit hours of courses and restructured the curriculum to enhance the occupational health training experience and ensure coverage of occupational and environmental health competencies. We coordinated faculty in creating the MAP ERC’s own UCD- and CSU-approved course “Occupational and Environmental Health Interdisciplinary Symposium” team-taught by faculty from all five disciplines. All MAP ERC-supported trainees enroll in this multidisciplinary course.

### **Diversity Recruitment**

In the MAP ERC’s first year, 13% of our trainees reported minority status. In 2008-2009, this figure rose to 15%. We recognize that it takes long-term commitment and the fostering of strong collaborations in the Hispanic, Native American, and other minority communities to achieve diversity and inclusion goals. Main events to increase the diversity of the student body included: appointment of Dominic Martinez, Director of the CU Office of Diversity and Inclusion and William Brazile, PhD CIH from CSU as co-directors; integration of Logic Model-based goals and objectives for our Outreach Program and Diversity Program; participation in multiple events and standing committees to creating awareness and partnerships at diversity career fairs, internship programs and related activities. Examples include collaboration with the Social Concerns Committee of the AIHA in presenting a roundtable discussion of Native American and Aboriginal OH&S issues at the 2009 AIHce, collaboration with the Colorado state health department’s Office of Health Disparities, and funding of a photojournalism project by Earl Dotter entitled “Native American and Aboriginal Workers Photo Journalism Project,” which will premier at the AIHA international conference in 2010 and become a traveling exhibit, focusing on Native American workers in traditional and new energy industries.

### **Outreach Program**

The Outreach Program completed a successful transition of leadership, with the recruitment of Kenneth Scott, MPH as our new director. Under former director Cindy Becnel's leadership in 2008-2009, the MAP ERC faculty and students participated or partnered in more than 200 outreach events and activities. In particular, we continued to lay important foundations for working closely with two under-served populations in our region: Tribal and Hispanic communities. Based on regional need, the Outreach Program and Administrative core prioritized efforts in two major arenas: Energy workers and Occupational Health State Surveillance. We established strong collaborations (NIOSH Denver Regional Office, oil and gas industry representatives, community environmental groups, environmental groups and other stakeholders) to address worker and community health issues in the energy sector. Recognizing the shortcomings of occupational health surveillance at the State level in much of the West, the MAP ERC staff teamed with the NIOSH Regional Office and the Council of State of Territorial Epidemiologists. MAP ERC staff completed collection, tabulation and the first level of longitudinal analysis of Occupational Health Indicators for Colorado and Wyoming, and co-organized the first meeting of Western States Occupational Network (WestON) to help promote Western states' efforts to conduct occupational health surveillance.

#### **Pilot/Small Projects Research Program**

In 2008-2009, we completed two funding application cycles. Sixteen applications were reviewed and 8 received funding. Funded topics focused on NORA objectives and included: Assessment of muscular exposure to the upper extremity among dairy parlor workers; assessment of respiratory health effects and immunologic sensitivity in epoxy resin workers; development of a novel low cost sampler to estimate aerosol deposition within the human lung; a metabolomic approach to selenium-related lung cancer risk in an occupational asbestos exposed cohort; an evaluation of two toluene diisocyanate sampling methods; assessment of radiation dose and risk from fly ash effluence of coal power plants; an ecologic assessment of pesticide occurrence and prevalence of Parkinson's disease; and cognitive effects of manganese exposure in children.